

2

CLASSIFICATION CONFIDENTIAL
CENTRAL INTELLIGENCE AGENCY
INFORMATION FROM
FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT
CD NO.

50X1-HUM

COUNTRY	USSR
SUBJECT	Economic; Technological - Agricultural machinery
HOW PUBLISHED	Monthly periodical
WHERE PUBLISHED	Moscow
DATE PUBLISHED	Apr 1951
LANGUAGE	Russian

DATE OF INFORMATION 1951

DATE DIST. 6 Jul 1951

NO. OF PAGES 3

SUPPLEMENT TO REPORT NO.

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF ESPIONAGE ACT 50 U. S. C., 31 AND 32, AS AMENDED. ITS TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW. REPRODUCTION OF THIS FORM IS PROHIBITED.

THIS IS UNEVALUATED INFORMATION

SOURCE Sel'khoz mashina, No 4, 1951

SOVIET MACHINES FOR HARVESTING CORN TESTED

A. V. Krasnichenko,
A. P. Sobolev

High yields of corn (50-60 centners per hectare) have become widespread in the USSR, and leading farmers gather as much as 110-140 centners of corn per hectare. Corn also yields 200-250 centners of green [ensilage] mass or 50-60 centners of hay per hectare. Until recently, only the sowing and cultivation of corn have been mechanized.

The SSh-6 drill is used for nest sowing of corn, while the SD-24 and T8-2 drills are used for ordinary row sowing. Research is being conducted on the replacement of the present colters with new rotating colters to improve seed germination. Combination drills based on the design of the SSh-6 are being constructed for simultaneously depositing seed and fertilizer.

The KUTS-4.2 tractor-drawn suspension cultivator is used for the care of seedlings, and the KN-4.2 and KN-5.4 suspension cultivators are used for seedlings with between-row intervals of 70 centimeters. A machine is being developed for weeding between rows.

In the past 3 years, the Special Design Bureau of the Rostsel'mash (Rostov-on-Don Agricultural-Machine Building) Plant aided by VISHOM (All-Union Institute of Agricultural-Machine Building) has constructed a number of machines for mechanizing corn picking, the most labor-consuming process in corn cultivation. The Special Design Bureau has developed machines to conform with varying climatic and soil conditions, for separate picking: a reaper-binder and an ear husker. For combined harvesting operations it has developed a corn picker with a stacker and combine. The new machines have been tested and recommended for series production, with the exception of the ear husker and the stacker for the corn picker, which need several improvements.

The ZhVK-1 single-row reaper-binder was tested in 1948 and 1949, found satisfactory, and recommended for series production.

0 1 3

CLASSIFICATION

CONFIDENTIAL

CONFIDENTIAL

		CLASSIFICATION		CONFIDENTIAL						
STATE	X	NAVY	X	NSRB	DISTRIBUTION					
ARMY		AIR		FBI						

CONFIDENTIALCONFIDENTIAL

50X1-HUM

The Special Design Bureau developed the ZhVK-2 two-row reaper-binder in 1950, using many of the units and individual parts of the ZhVK-1. The specifications of the ZhVK-2 are: weight including elevator, 1,410 kilograms; dimensions without elevator and cart, 3,915 x 2,500 x 1,900 millimeters; working breadth of machine, 1.4-1.8 meters; productivity, 0.65-0.84 hectares per hour; and capacity of cart, 1,000 kilograms or 120-150 sheaves. Four men operate this machine, which increases labor productivity approximately seven times as compared to hand harvesting. Tests in 1950 held at the Kubanskaya Machine Experimental Station under unfavorable conditions (complete breakage of stalks) gave satisfactory results.

The new OP-2 ear husker is designed to process corn stalks gathered by the reaper-binder or by hand. It separates the ears from the stalks, strips them of cover leaves, and pulverizes the stalks into bulk ensilage. The machine has a feeder which carries the stalks to it from the ground. The specifications of the OP-2 are: weight, 1,510 kilograms, dimensions, 6,000 x 2,000 x 2,400 millimeters; productivity, 1.5-2.0 tons per hour; and fuel consumption, 7.6 kilograms per ton of corn ears. The machine increases labor productivity approximately five times. The husker was tested at the Kubanskaya Machine Experimental Station under unfavorable conditions. In the test, 24 tons of hybrid 140 and Minnesota corn in ears were processed, and the following results were obtained: ears picked by the machine, 99.7 percent; degree to which ears were husked, 50 percent; broken ears, 2.45 percent; shelling of grain from the ears, 2.51 percent, and loss of grain in the bulk ensilage, 0.84 percent.

The Special Design Bureau started to develop the SPU-2 corn picker in 1948 and introduced a number of improvements in it in 1950. The SPU-2 is a two-row machine designed for work on corn plantings with between-row intervals of 70-90 centimeters, and is drawn by the SKhTZ-3 wheeled tractor, or in some cases by the Universal tractor in first speed. Specifications of the SPU-2 are: weight, 1,600 kilograms; dimensions, 4,375 x 4,010 x 3,395 millimeters; working breadth, 1.4-1.8 meters; productivity, 0.65-0.84 hectares per hour; and fuel consumption, 16 kilograms per hectare. The SPU-2 increases labor productivity approximately 15 times.

Tests on the SPU-2 took place at the Kubanskaya Machine Experimental Station from 28 September to 1 November 1950 on plantings of Minnesota and hybrids of Minnesota corn with stalk heights of 110-163 centimeters. Corn yield was 15-40 centners per hectare with an average density of 37,714 plants per hectare. Moisture content of the stalks was 44.2-63.0 percent; of the grain, 18-19 percent. During the test period, 90 percent of the corn was broken and knocked to the ground by strong winds and heavy rains. In spite of this, the picker gathered 39 and 26 hectares of corn with between-row intervals of 90 and 70 centimeters respectively.

Productivity of the machine was as high as 0.60-0.71 hectares per hour. Tests of the machine gave these results: shelling of grain from ears, an average of 1.52 percent; nonreturnable loss of grain, 1.10 percent; returnable loss, 4.95 percent; degree to which ears were stripped of cover leaves, complete removal, 34.9 percent; and partial removal, 17 percent. On the basis of these tests, the SPU-2 picker has been recommended for production to replace the SKP-2 picker.

The KU-2 corn-harvesting combine, built after large-scale research and experiments by the Special Design Bureau at the Rostsel'mash Plant and by VISKhom, turns out corn in ears and bulk ensilage. This two-row combine gathers corn from plantings with between-row intervals of 70 and 90 centimeters, and is drawn by the KD-35 tractor. Specifications of the KU-2 are: weight without stacker, 1,880 kilograms; dimensions, 6,000 x 3,800 x 3,450 millimeters; working breadth, 1.4-1.8 meters; productivity, 0.65-0.84 hectares per hour; capacity of corn bin, one cubic meter; capacity of stacker, 5 cubic meters; and fuel consumption, 25.5 kilograms to harvest one hectare. The combine increases labor productivity 30 times.

- 2 -

CONFIDENTIAL**CONFIDENTIAL**

CONFIDENTIALCONFIDENTIAL

50X1-HUM

The combine was tested at the Kubanskaya Machine Experimental Station from 28 September to 16 November 1950 on plantings of hybrid 140 and Minnesota corn with stalk heights of 130-150 centimeters. Corn yield was 26 and 46 centners per hectare with an average density of 16,300 plants per hectare. Moisture content of the stalks was 63 percent; of the grain, 18 percent. During the testing period, heavy rains fell, coupled with strong winds, and as a result, 90 percent of the corn was broken and knocked to the ground. In spite of these unfavorable conditions, the combine harvested 11 hectares of corn with between-row intervals of 90 centimeters, and 21 hectares of corn with between-row intervals of 70 centimeters. Productivity of the machine reached 0.70-0.72 hectares per hour. The following results were obtained in testing the combine: shelling of grain from ears, average of 5.3 percent; nonreturnable loss of grain, 3.6 percent; returnable loss, 2.2 percent; degree to which cover leaves were stripped from ears -- completely stripped, 43 percent, and partially stripped, 17 percent. On the basis of these results, production of a series of combines has been recommended in order to test their economic efficiency.

- E N D -

- 3 -

CONFIDENTIAL**CONFIDENTIAL**